

## CLAIMS

1. In a voice signal pitch period detecting method for detecting the pitch period of an input voice waveform by taking a predetermined number of pitch periods on the basis of the input voice waveform of a predetermined time period, a voice signal pitch period detecting method characterized by

reducing, when the detected pitch period is not more than a predetermined reference value, the number of times of pitch period detecting processing by considering the pitch period of a waveform of a predetermined number of pitch periods subsequent to a waveform of the predetermined number of pitch periods detected the same as the currently detected pitch period.

2. In a voice signal pitch period detecting method for detecting the pitch period of an input voice waveform by taking a predetermined number of pitch periods on the basis of the input voice waveform of a predetermined time period, a voice signal pitch period detecting method characterized by

judging whether the detected pitch period is long or short on the basis of the ratio of the

detected pitch period to said predetermined time period, and reducing, when it is judged that the detected pitch period is short, the number of times of pitch period detecting processing by considering the pitch period of a waveform of a predetermined number of pitch periods subsequent to a waveform of the predetermined number of pitch periods detected the same as the detected pitch period.

3. A pitch period detecting device comprising:

first means for detecting the pitch period of an input voice waveform by taking a predetermined number of pitch periods on the basis of the input voice waveform of a predetermined time period;

second means for judging whether or not the detected pitch period is not more than a predetermined reference value;

third means for causing, when it is judged that the detected pitch period is more than the predetermined reference value, the first means to detect the pitch period of a waveform of a predetermined number of pitch periods subsequent to a waveform of the predetermined number of pitch periods detected; and

fourth means for determining, when it is judged that the detected pitch period is not more than the

predetermined reference value, the pitch period of the waveform of the predetermined number of pitch periods subsequent to the waveform of the predetermined number of pitch periods detected to be the same as the currently detected pitch period, and omitting the pitch period detecting processing by the first means with respect to the waveform of the predetermined number of pitch periods subsequent to the waveform of the predetermined number of pitch periods detected.

4. A pitch period detecting device comprising:

first means for detecting the pitch period of an input voice waveform by taking a predetermined number of pitch periods on the basis of the input voice waveform of a predetermined time period;

second means for judging whether the detected pitch period is long or short on the basis of the ratio of the detected pitch period to said predetermined time period;

third means for causing, when it is judged that the detected pitch period is long, the first means to detect the pitch period of a waveform of a predetermined number of pitch periods subsequent to a waveform of the predetermined number of pitch periods detected; and

fourth means for determining, when it is judged that the detected pitch period is short, the pitch period of the waveform of the predetermined number of pitch periods subsequent to the waveform of the predetermined number of pitch periods detected to be the same as the currently detected pitch period, and omitting the pitch period detecting processing by the first means with respect to the waveform of the predetermined number of pitch periods subsequent to the waveform of the predetermined number of pitch periods detected.

5. A voice signal time-axis compressing device comprising:

pitch period detecting means for detecting the pitch period of an input voice waveform; and

time-axis compressing means for time-axis compressing the input voice waveform on the basis of the pitch period detected by the pitch period detecting means,

the pitch period detecting means comprising  
first means for detecting the pitch period of the input voice waveform by taking a predetermined number of pitch periods on the basis of the input voice waveform of a predetermined time period,

second means for judging whether or not the

detected pitch period is not more than a predetermined reference value,

third means for causing, when it is judged that the detected pitch period is more than the predetermined reference value, the first means to detect the pitch period of a waveform of a predetermined number of pitch periods subsequent to a waveform of the predetermined number of pitch periods detected, and

fourth means for determining, when it is judged that the detected pitch period is not more than the predetermined reference value, the pitch period of the waveform of the predetermined number of pitch periods subsequent to the waveform of the predetermined number of pitch periods detected to be the same as the currently detected pitch period, and omitting the pitch period detecting processing by the first means with respect to the waveform of the predetermined number of pitch periods subsequent to the waveform of the predetermined number of pitch periods detected.

6. A voice signal time-axis compressing device comprising:

pitch period detecting means for detecting the pitch period of an input voice waveform; and

time-axis compressing means for time-axis compressing the input voice waveform on the basis of the pitch period detected by the pitch period detecting means,

the pitch period detecting means comprising first means for detecting the pitch period of the input voice waveform by taking a predetermined number of pitch periods on the basis of the input voice waveform of a predetermined time period,

second means for judging whether the detected pitch period is long or short on the basis of the ratio of the detected pitch period to said predetermined time period;

third means for causing, when it is judged that the detected pitch period is long, the first means to detect the pitch period of a waveform of a predetermined number of pitch periods subsequent to a waveform of the predetermined number of pitch periods detected, and

fourth means for determining, when it is judged that the detected pitch period is short, the pitch period of the waveform of the predetermined number of pitch periods subsequent to the waveform of the predetermined number of pitch periods detected to be the same as the currently detected pitch period,

and omitting the pitch period detecting processing by the first means with respect to the waveform of the predetermined number of pitch periods subsequent to the waveform of the predetermined number of pitch periods detected.

7. A voice signal time-axis decompressing device comprising:

pitch period detecting means for detecting the pitch period of an input voice waveform; and

time-axis decompressing means for time-axis decompressing the input voice waveform on the basis of the pitch period detected by the pitch period detecting means,

the pitch period detecting means comprising

first means for detecting the pitch period of the input voice waveform by taking a predetermined number of pitch periods on the basis of the input voice waveform of a predetermined time period,

second means for judging whether or not the detected pitch period is not more than a predetermined reference value,

third means for causing, when it is judged that the detected pitch period is more than the predetermined reference value, the first means to detect the pitch period of a waveform of a

predetermined number of pitch periods subsequent to a waveform of the predetermined number of pitch periods detected, and

fourth means for determining, when it is judged that the detected pitch period is not more than the predetermined reference value, the pitch period of the waveform of the predetermined number of pitch periods subsequent to the waveform of the predetermined number of pitch periods detected to be the same as the currently detected pitch period, and omitting the pitch period detecting processing by the first means with respect to the waveform of the predetermined number of pitch periods subsequent to the waveform of the predetermined number of pitch periods detected.

8. A voice signal time-axis decompressing device comprising:

pitch period detecting means for detecting the pitch period of an input voice waveform; and

time-axis decompressing means for time-axis decompressing the input voice waveform on the basis of the pitch period detected by the pitch period detecting means,

the pitch period detecting means comprising first means for detecting the pitch period of



the input voice waveform by taking a predetermined number of pitch periods on the basis of the input voice waveform of a predetermined time period,

second means for judging whether the detected pitch period is long or short on the basis of the ratio of the detected pitch period to said predetermined time period;

third means for causing, when it is judged that the detected pitch period is long, the first means to detect the pitch period of a waveform of a predetermined number of pitch periods subsequent to a waveform of the predetermined number of pitch periods detected, and

fourth means for determining, when it is judged that the detected pitch period is short, the pitch period of the waveform of the predetermined number of pitch periods subsequent to the waveform of the predetermined number of pitch periods detected to be the same as the currently detected pitch period, and omitting the pitch period detecting processing by the first means with respect to the waveform of the predetermined number of pitch periods subsequent to the waveform of the predetermined number of pitch periods detected.